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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,736	07/19/2000	Reza Mirkhani	99RSS476NAD	2617

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BOULDER, CO 80302

EXAMINER

PARK, ILWOO

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,736

Applicant(s)

MIRKHANI ET AL.

Examiner

Ilwoo Park

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-11 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-11 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. Claims 1-3, 5-11, and 14-20 are presented for examination.
2. Sorber, Fluss, and Dolkas et al were cited as prior art in the last office action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 10, 11, 14, 15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorber, US patent No. 6,018,515 in view of Fluss, US patent No. 6,304,578.

As to claim 1, Sober teaches a link layer controller [fig. 3 and col. 4, lines 41-50] comprising:

a network layer interface [col. 5, lines 60-67] configured to exchange packets with a network layer system and transfer a status signal to the network layer system;

a physical layer interface [col. 6, lines 1-11] configured to exchange the packets with a physical layer system;

a memory [fig. 5] comprising a plurality of transmit buffers; and

a memory controller [figs. 3 and 5] configured to exchange the packets with the network layer interface exchange the packets with the memory [col. 6, lines 38-44], exchange the packets with the physical layer interface, determine available space in at

least one of the plurality of transmit buffers, and generate the status signal [col. 8, line 62-col. 9, line 10] to control of packets to prevent [col. 9, lines 9-10] over-run in the plurality of transmit buffers.

However, Sober does not explicitly teach each of the plurality of transmit buffers corresponds with a transmit channel of a plurality of transmit channels and if occupancy on a first transmit buffer corresponding with a first transmit channel exceeds a threshold, then prioritize the transmit channels to transmit packets from the first transmit buffer corresponding with the first transmit channel.

Fluss teaches a memory controller having a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets with a physical layer; specifically, Fluss teaches each of the plurality of transmit buffers corresponding with a transmit channel [col. 4, lines 63-64; fig. 1] of a plurality of transmit channels and the memory controller configured to prioritize [col. 7, lines 4-8] the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Sober and Fluss because they both teach a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets with a physical layer in network communication and a memory controller checking an occupancy status of each buffer for flow control of transmit packets and the Fluss' teaching of the plurality of transmit buffers corresponding with a transmit channel of a

plurality of transmit channels and the memory controller configured to prioritize the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold would increase flexibility of managing a buffer per channel allocated in network communication of multi-channels.

5. As to claim 2, Fluss teaches the status signal indicates the available space in each of the transmit buffers [col. 7, lines 8-13].

6. As to claims 3 and 14, Sober teaches the memory controller is configured to control a size of each of the transmit buffers in response to external instructions from the network layer system [col. 8, lines 45-51; col. 9, lines 15-21].

7. As to claims 5 and 15, Sorber teaches the network layer interface [MTP-L3 interface bus driver 12 in fig. 3] is configured to use a packet exchange bus to exchange the packets with the network layer system and to transfer the status signal to the network layer system [col. 9, lines 4-10].

8. As to claims 10 and 20, Sorber teaches the network layer interface [MTP-L3 interface bus driver 12 in fig. 3] is configured to use a packet exchange bus to exchange stop transfer signals with the network layer system [col. 9, lines 4-10].

9. As to claim 11, Sober teaches a method of operating a communications device [figs. 3 and 5; col. 4, lines 41-50; col. 5, line 60-col. 6, line 11] that includes a memory comprising a plurality of transmit buffers, the method comprising:

transferring packets between a network layer system and a link layer system;
transferring packets between the link layer system and a physical layer system;
transferring packets between the physical layer system and a communication path; and

generating a status signal [col. 8, line 62-col. 9, line 28] in the link layer system indicating available space in each of the plurality of transmit buffers.

However, Sober does not explicitly teach each of the plurality of transmit buffers corresponds with a transmit channel of a plurality of transmit channels and if occupancy on a first transmit buffer corresponding with a first transmit channel exceeds a threshold, then prioritize the transmit channels to transmit packets from the first transmit buffer corresponding with the first transmit channel.

Fluss teaches a memory controller having a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets with a physical layer; specifically, Fluss teaches each of the plurality of transmit buffers corresponding with a transmit channel [col. 4, lines 63-64; fig. 1] of a plurality of transmit channels and the memory controller configured to prioritize [col. 7, lines 4-8] the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Sober and Fluss because they both teach a plurality of transmit buffers for exchanging packets with a network layer and exchanging packets

with a physical layer in network communication and a memory controller checking an occupancy status of each buffer for flow control of transmit packets and the Fluss' teaching of the plurality of transmit buffers corresponding with a transmit channel of a plurality of transmit channels and the memory controller configured to prioritize the transmit channels to transmit packets from a first transmit buffer corresponding with a first transmit channel if occupancy on the first transmit buffer corresponding with the first transmit channel exceeds a threshold would increase flexibility of managing a buffer per channel allocated in network communication of multi-channels.

10. Claims 6-9 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorber and Fluss as applied to claims 5 and 15 above, and further in view of Dolkas et al., US patent No. 5,007,051.

As to claims 6 and 16, Dolkas et al teach a packet exchange bus to exchange a status including parity information with a network layer system [register 103 in figs. 3 and 4; col. 8, lines 25-38; col. 10, lines 13-15; col. 12, lines 66-68].

As to claims 7 and 17, Dolkas et al teach a packet exchange bus to exchange a status including data validity information [col. 10, line 67-col. 11, line 2].

Therefore, it would have been obvious to one of ordinary skill in the art to include the Dolkas et al's teaching of the packet exchange bus including parity information and data validity information would increase reliability of packet transfer of Sorber and Fluss.

As to claims 8 and 18, Dolkas et al teach a packet exchange bus to exchange a status including start of packet information and end of packet information [col. 1, lines 49-52].

As to claims 9 and 19, Dolkas et al teach a packet exchange bus to exchange a status including a synchronization signal [col. 1, lines 49-52].

Therefore, it would have been obvious to one of ordinary skill in the art to include the Dolkas et al's teaching of the packet exchange bus including start of packet information, end of packet information parity information, and/or a synchronization signal would increase flexibility in processing a packet.

Response to Arguments

11. Applicant's arguments filed 2/13/2004 have been fully considered but they are not persuasive.

The Applicant argues in substance that a) Fluss prioritizes packets of a channel; Fluss does not prioritizes channels, b) for instance, in Fluss, column 7, lines 22-28, if a packet is considered a large packet, then that packet is given a higher priority, and c) the memory controller of claim 1 may treat all packets in the channel the same.

For the point a), Fluss teaches each transmit buffer having [col. 4, lines 63-64; fig. 1] its own transmit channel directly connected to the buffer and a memory controller prioritizing data packet in a transmit buffer and transmitting the prioritized packet through a corresponding transmit channel of a plurality of transmit channels; in other words, each transmit channel of a plurality of transmit channels connected to each transmit buffer having packets is operative to transmit each packet according to the priority given to the packet. Thus, transmit channels are prioritized in each packet transmitting in order to transmit prioritized packets.

For the point b), Fluss does not teach a large packet is given a higher priority; conversely, Fluss teaches a large packet is given a lower priority [fig. 4, col. 7, lines 22-39; col. 7, line 60-col. 8, line 42].

And for the point c), limitations are not read into the claims.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

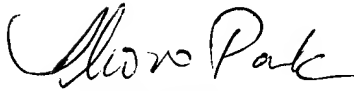
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ilwoo Park whose telephone number is (703) 308-7811. The examiner can normally be reached on Monday through Friday from 9:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Hand-delivered responses should be brought to US Patent and Trademark Office, 2011 South Clark Place, Customer Window, Crystal Plaza Two, Lobby, Room 1B03, Arlington, VA 22202.

A handwritten signature in cursive script, appearing to read "Ilwoo Park".

Ilwoo Park

Primary Examiner

April 22, 2004